

Title: METHOD AND
APPARATUS FOR ENCODING
MOVING PICTURE
Inventor(s): Keiichi CHONO
DOCKET NO.: 040373-0370

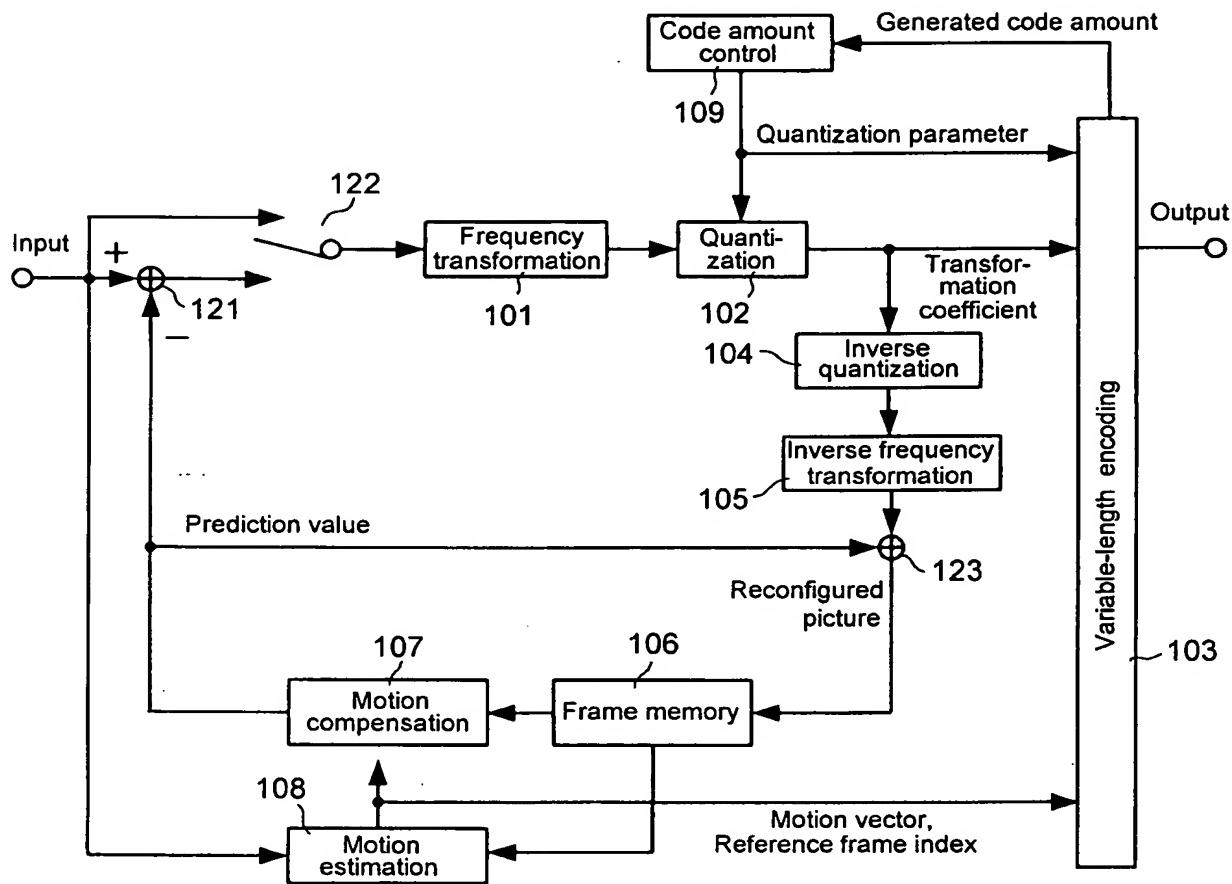


FIG. 1

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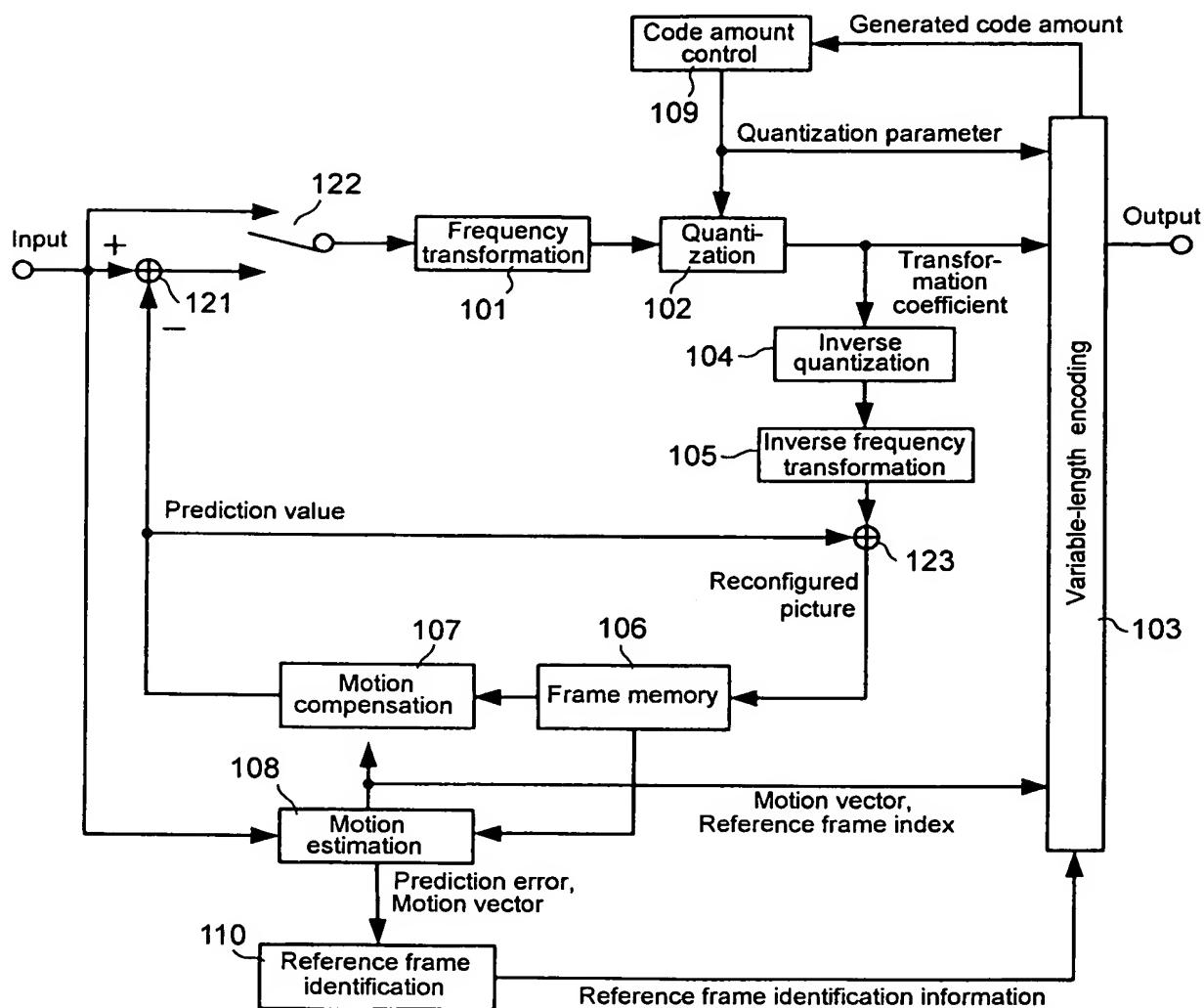
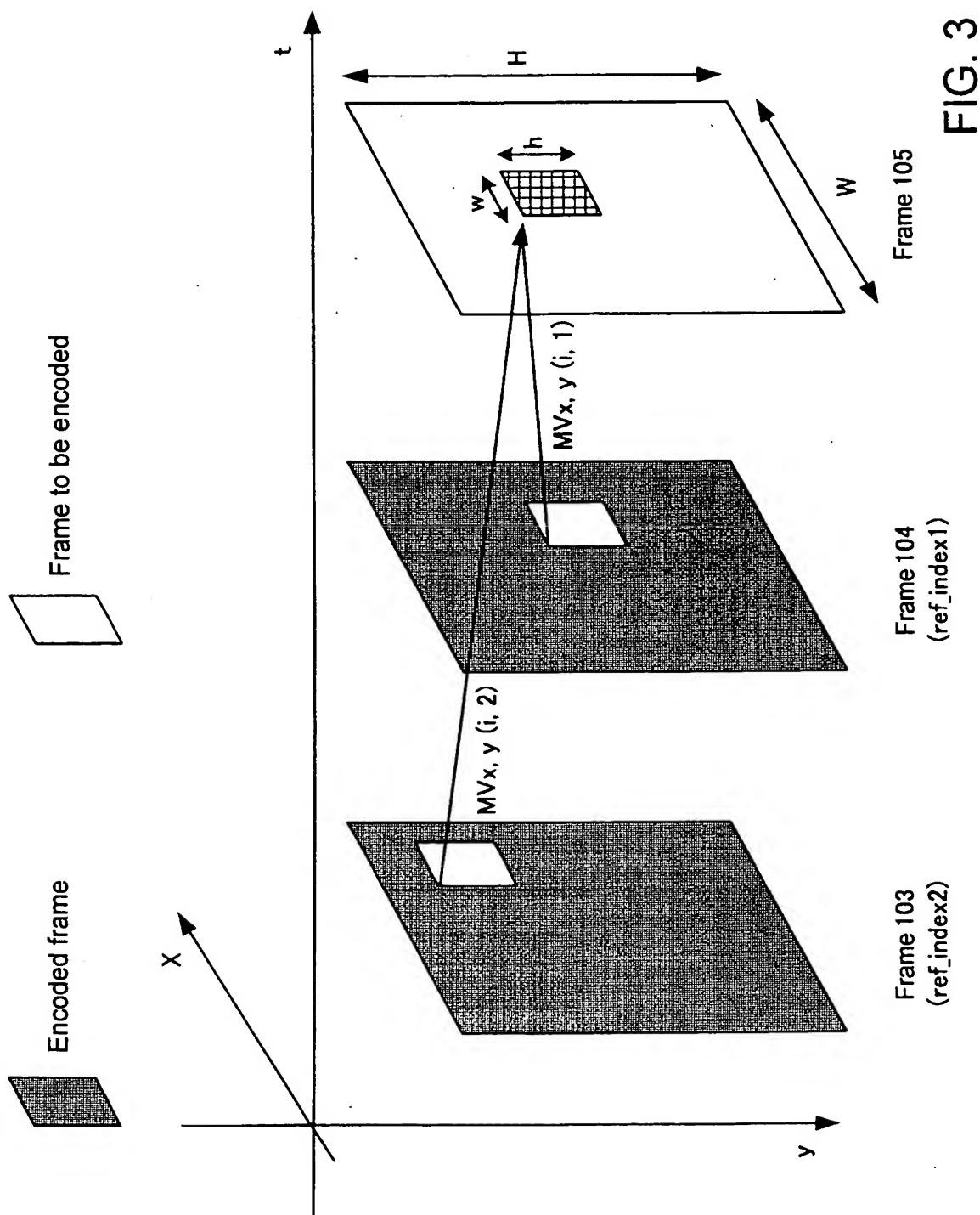


FIG. 2

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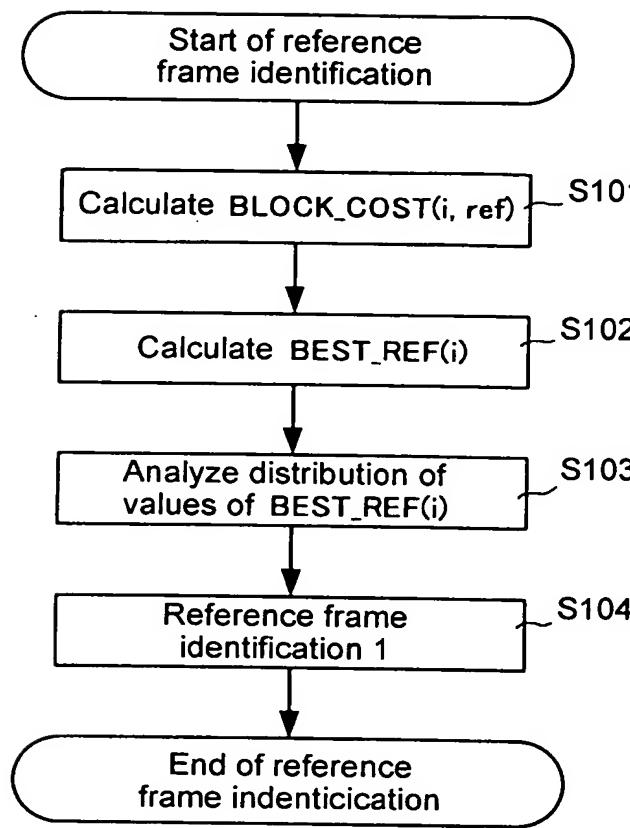


FIG. 4

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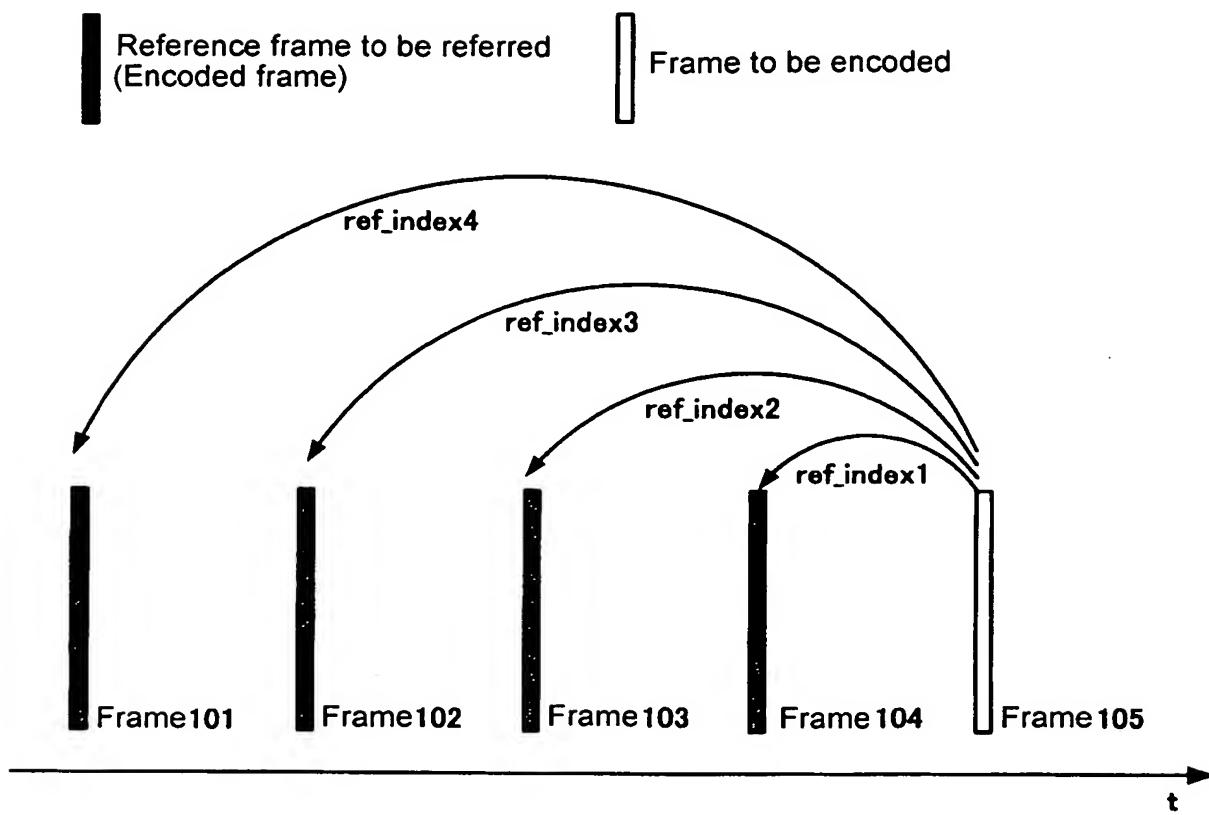


FIG. 5

| frame_num(r) | ref_index | m_ref_index | | |
|--------------|-----------|-------------|-----------|--------------|
| | | Example 1 | Example 2 | Example 3 |
| 104 | 1 | 1 | 3 | 1 |
| 103 | 2 | 2 | 4 | 2 (NUM(2)=0) |
| 102 | 3 | 3 | 1 | 3 (NUM(3)=0) |
| 101 | 4 | 4 | 2 | 4 (NUM(4)=0) |

FIG. 6

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| frame_num | ref_index | Variable-length code |
|-----------|-----------|----------------------|
| 104 | 1 | 0 |
| 103 | 2 | 10 |
| 102 | 3 | 110 |
| 101 | 4 | 1110 |

FIG. 7A

| frame_num | ref_index | Variable-length code |
|-----------|-----------|----------------------|
| 104 | 3 | 110 |
| 103 | 4 | 1110 |
| 102 | 1 | 0 |
| 101 | 2 | 10 |

FIG. 7B

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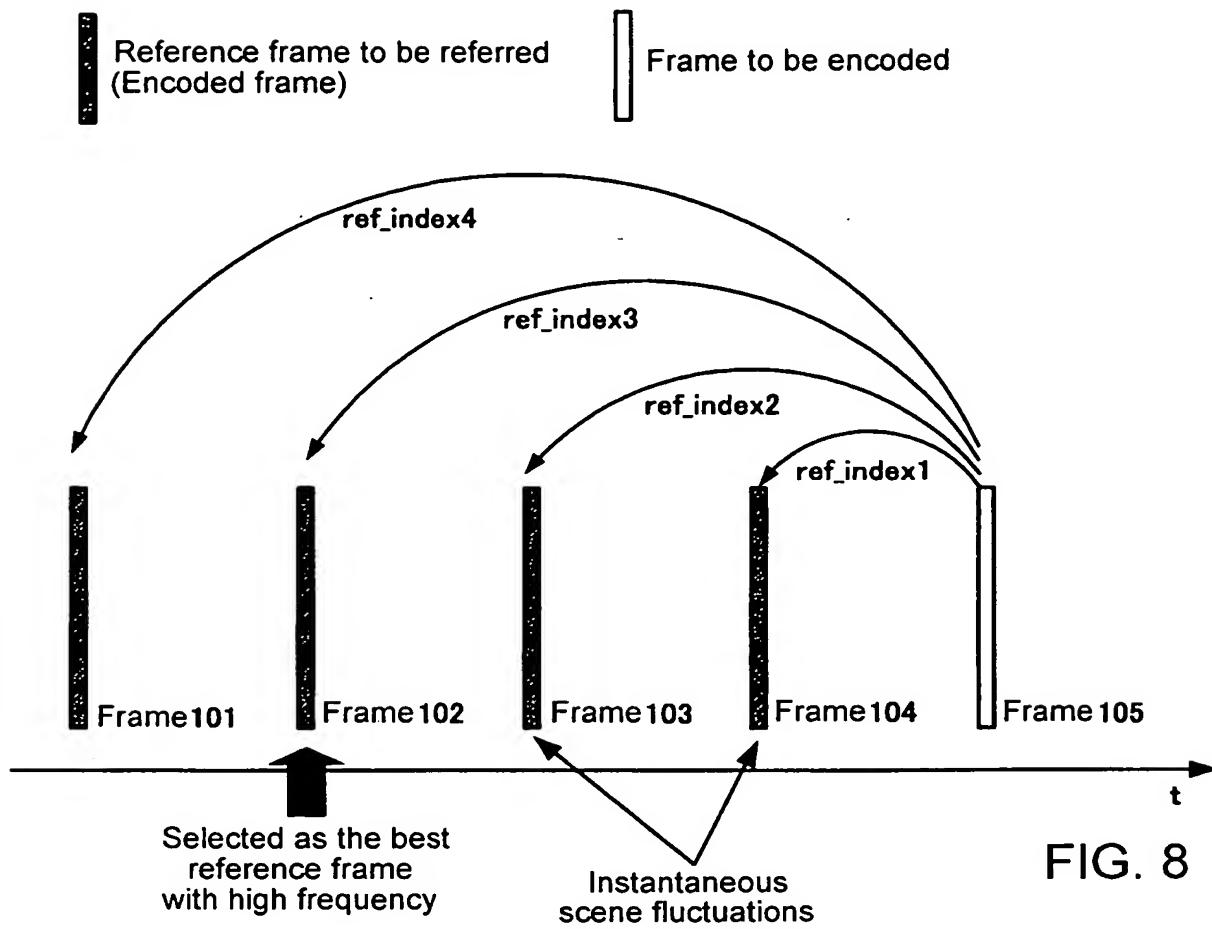


FIG. 8

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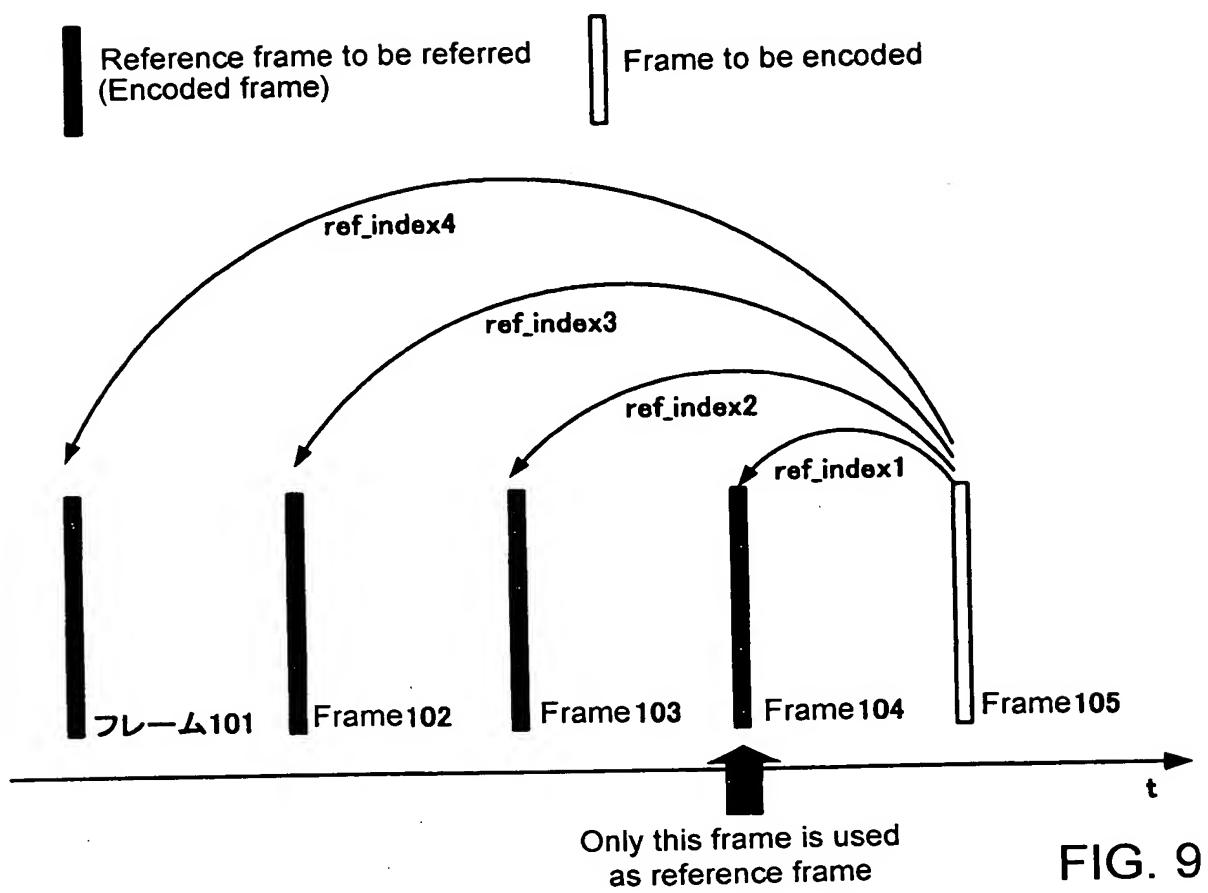


FIG. 9

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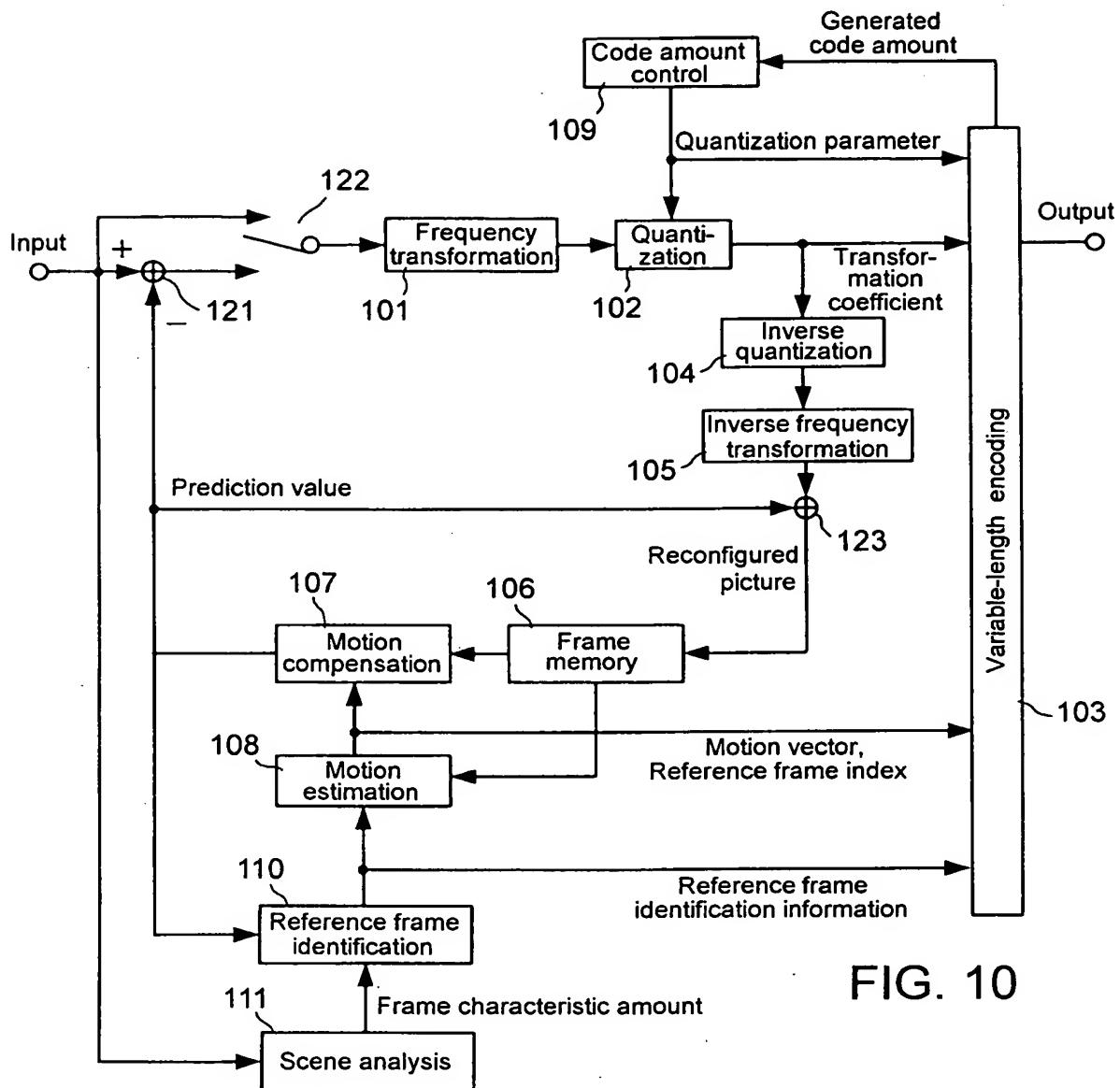


FIG. 10

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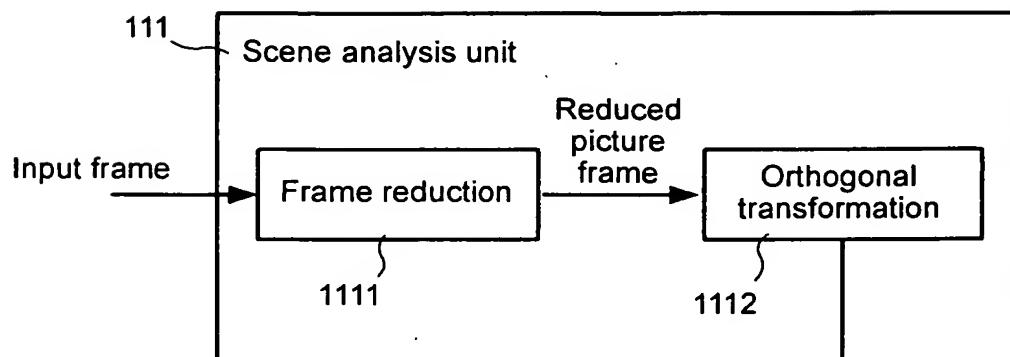
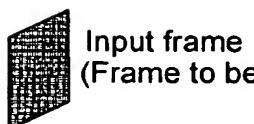


FIG. 11

Orthogonal
transformation
coefficient



Input frame
(Frame to be encoded)



Reduced frame

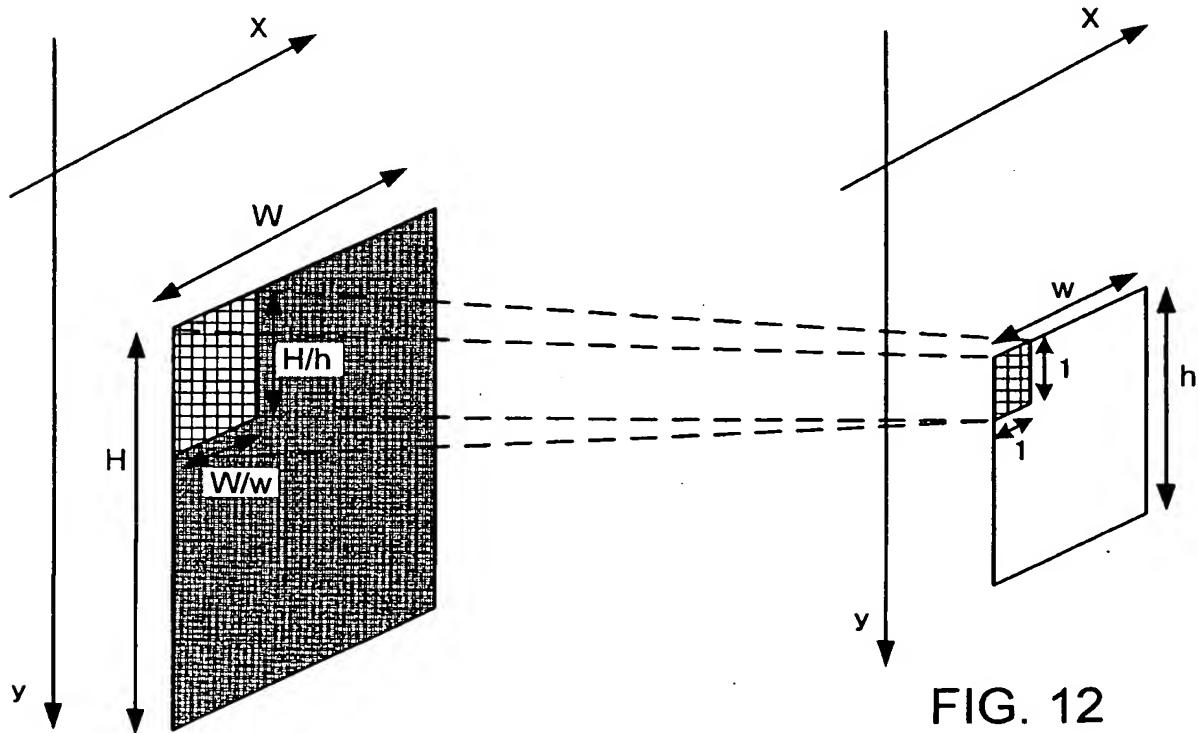


FIG. 12

$$[H_2] = \frac{1}{\sqrt{2}} \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$$

$$[H_4] = \frac{1}{\sqrt{2}} \begin{bmatrix} H_2 & H_2 \\ H_2 & -H_2 \end{bmatrix}$$

$$[H_8] = \frac{1}{\sqrt{2}} \begin{bmatrix} H_4 & H_4 \\ H_4 & -H_4 \end{bmatrix}$$

⋮

$$[H_{2^n}] = \frac{1}{\sqrt{2}} \begin{bmatrix} H_{2^{n-1}} & H_{2^{n-1}} \\ H_{2^{n-1}} & H_{2^{n-1}} \end{bmatrix}$$

FIG. 13

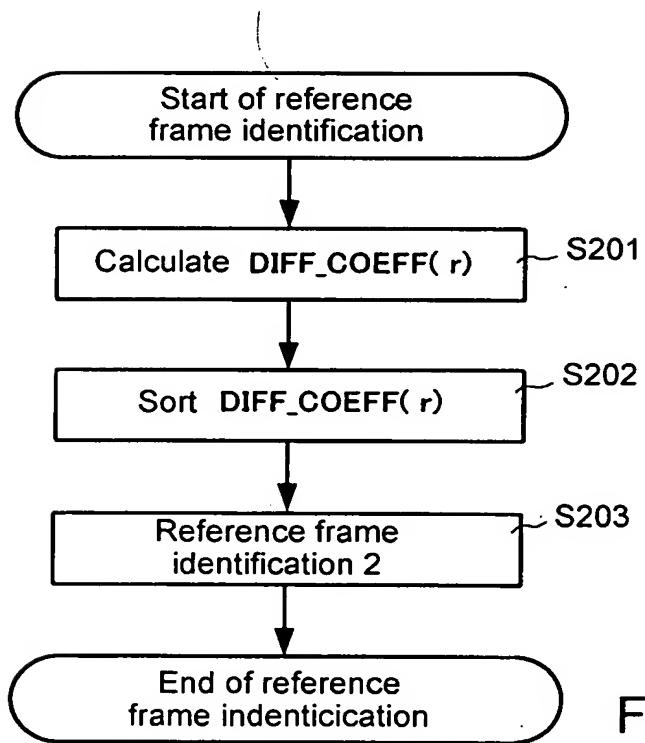


FIG. 14

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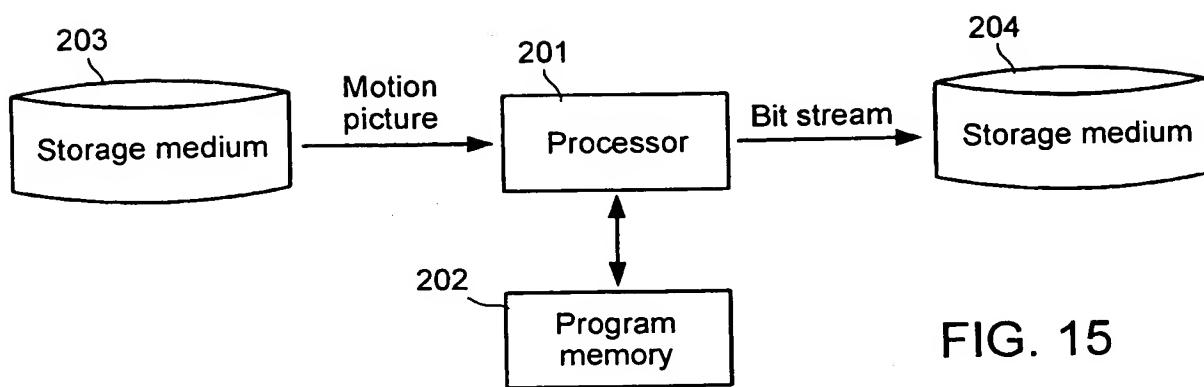


FIG. 15